RFIDEAS

pcProx® RKE

Installation
User Manual

Thank You!

Congratulations on the purchase of your pcProx® RKE device(s). RF IDeas hopes you enjoy using the readers as much as we enjoyed creating and developing them. Configuration is easy, so you will be able to quickly take advantage of a more secure environment in your business, school, or organization.

Please call our Sales department if you have any questions or are interested in our OEM and Independent Developer's programs.

We look forward to your comments and suggestions for our product line! Please go to www.RFIDeas.com and follow the **Support ⇨ Learning Center** link for more details about our product line.

We are always discovering new applications for our product line(s). There are several software developer's licensing our technology so the solution you are looking for may already be developed.

Thank you,
The RF IDeas Staff

Need Assistance?

Ph: 847.870.1723
Fx: 847.483.1129
E: Sales@RFIDeas.com
TechSupport@RFIDeas.com

Contents

2 Thank You!

4 Chapter 1: The Basics
4 RKE Overview
- 4 pcProx RKE is Secure
- 4 pcProx RKE Receiver
- 4 pcProx RKE Key Fob Transmitter
- 4 Short Range RF "Proximity" functionality for traditional access control

5 Chapter 2: Configuration and Wiring
5 Configuration
- 5 Antenna Connector
- 5 JP3
- 5 Received Signal Strength Indication (RSSI) Adjustment
- 6 Relay Outputs
- 6 Wiegand Outputs
- 7 Power Inputs
- 7 Reset Button

8 Chapter 3: Mounting Recommendations
8 Proper Mounting Procedure
9 Receiver Specifications

10 Chapter 4: Tips and Troubleshooting
10 Precautions
10 Before You Call Technical Support
10 Talking To The Technician

13 Index

14 Other Products and Accessories

The Basics

1

RKE Overview

The pcProx® RKE receiver and Key Fob transmitter, available on 315MHz or 418MHz frequencies, work together to provide up to 100 feet of read range ensuring the user convenience as well as personal security.

pcProx RKE is Secure

The pcProx RKE utilizes code scrambling technology for high security. This technology combines a 16 bit scrambling technique generated by a non-linear algorithm. This technique eliminates the threat of code scanning as each transmission is unique, thus rendering code capture and resend schemes useless. All scrambled data is stored in the EEPROM, which is not accessible.

pcProx RKE Receiver

The pcProx RKE receiver detects radio frequency (RF) signals from the RKE key fob transmitter. An adjustable read range of up to 100 feet allows flexibility for a variety of users. Two channels (A & B) are available for signal reception, allowing designation of "IN" and "OUT" channels for two-door garage applications. Since each pcProx receiver has two distinct Wiegand outputs, only one receiver is required for IN/OUT applications where both entrances/exits are in close proximity to one another.

pcProx RKE Key Fob Transmitter

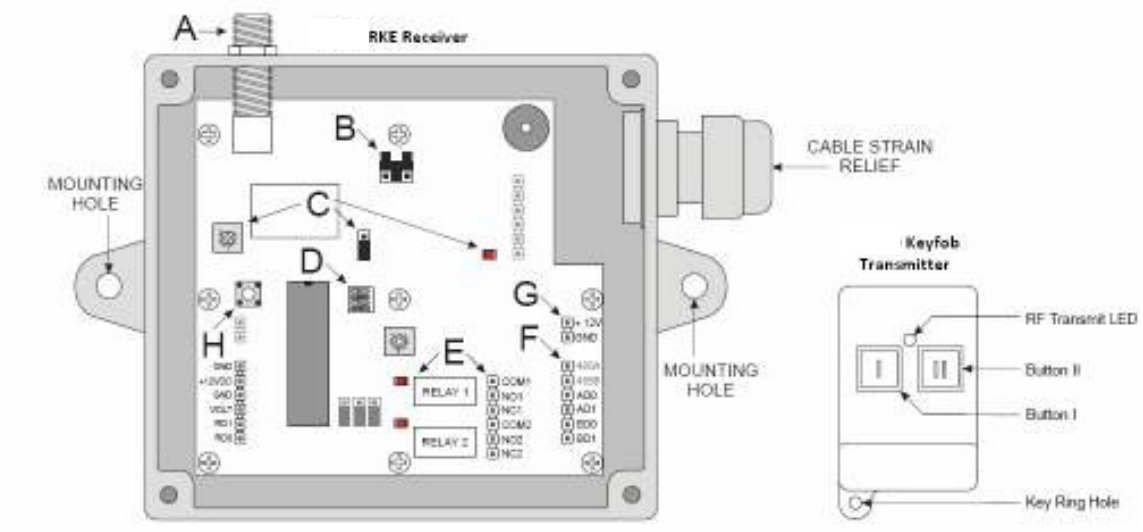
The pcProx RKE key fob is a click-operated RF transmitter that sends radio frequency (RF) signals to the receiver. Omni directional RF signal transmission easily reaches the receiver without requiring a direct line of sight or having to point the transmitter. The standard programming enables the use of one button for "IN" and the other for "OUT" use.

Short Range RF "Proximity" functionality for traditional access control

The RF IDeas pcProx RKE remote keyless entry transmitter can be optionally fitted with a proximity transponder for use on HID proximity readers. This eliminates the need for end users to carry a separate credential for traditional door access control.

Configuration and Wiring 2

Configuration



Antenna Connector (A)

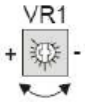
"F" Type, 3/8''-32

JP3 (B)

Default position: Jumper 1 & 3 OUT (pins not shorted); jumper 2 IN (pins shorted)

Jumper 1	Out: On-board Beeper Enabled (sound when valid data is received)
	In: On-Board Beeper Disabled
Jumper 2	Out: Accepts SF200 Transmitters only (binary stream support)
	IN: Accepts SF100 or SF200 Transmitters (SF100 Mode)
Jumper 3	N/A: Reserved for Future Use

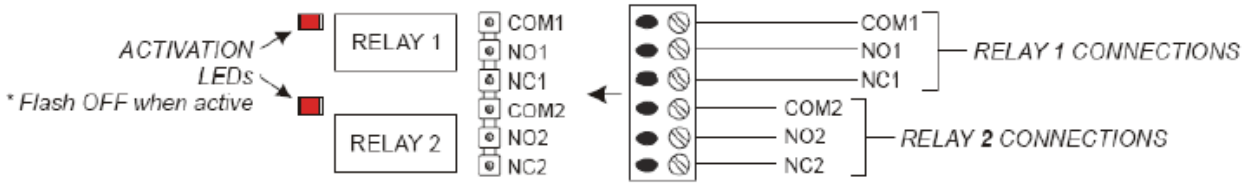
Received Signal Strength Indication (RSSI) Adjustment (C)

	RSSI is OFF (Default position; maximum sensitivity; maximum range).
	If the LED 1 is ON or flashing when a key fob transmitter isn't active, this means there is a signal present in the receiver (normally caused by electrical noise). This could cause undesired results, such as interference with valid data signals. To reduce the amount of noise, turn RSSI ON (JP1).
	When RSSI is ON (JP1), carefully adjust VR1 for range and noise rejection. For noise rejection set VR1 just below the point that causes LED1 to turn off.

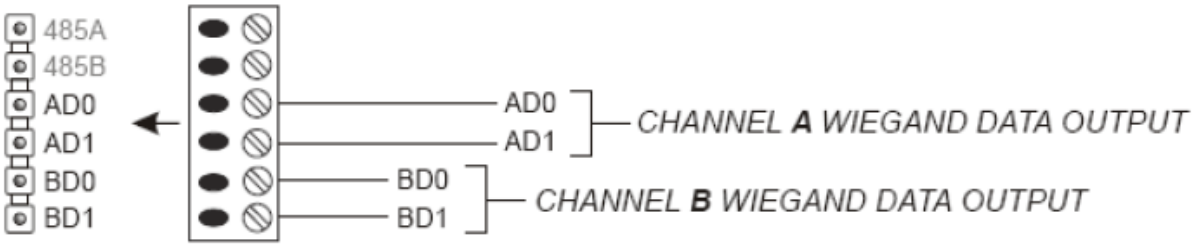
Dip Switch (D) OFF ⟷ ON 	Default position: Switch 1, 2, and 3 OFF; switch 4 ON

Switch 1	OFF = Single Wiegand channel model. Buttons I & II on the key fob transmitter will send data over the 'A' channel (AD0 & AD1) and activate relay 1 (if relay is ON).
	ON = Dual Wiegand channel mode. Button I will send data on the A' channel (AD0 & AD1) and activate relay 1 (if relay is ON). Button II will send data on the 'B' channel (BD0 & BD1) and activate relay 2 (if relay activation is ON).
Switch 2	OFF = Receiver will read one valid data signal and pass the Wiegand data to the access controller.
	ON = Receiver will read two successive data signals and compare them, if they are the same it passes Wiegand data to the access controller. Note: the key fob transmitter sends data at 10 times per second on a single button press (continuous transmission).
Switch 3	OFF = 37-bit Propriety Wiegand (call for format structure)
	ON = 26-bit standard Wiegand
Switch 4	OFF = Relay activation OFF
	ON = Relay activation ON

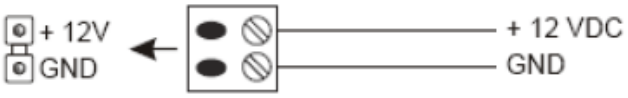
Relay Outputs (E)



Wiegand Outputs (F)



Power Inputs (G)



Reset Button (H)

Press the reset button after configuration for changes to take effect.

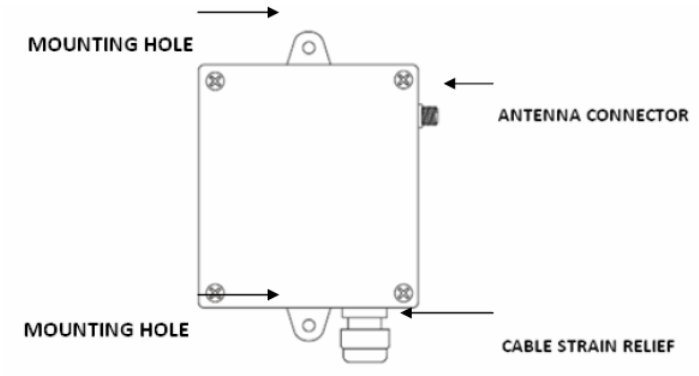
	Reset Button

Mounting Recommendations 3

Proper Mounting Procedure

1. Mount the receiver as shown below. This will put the whip antenna in a horizontal position which achieves maximum range.

   Note: Mounting the pcProx RKE receiver with “Cable Strain relief” in the vertical position is NOT recommended.



2. Use the existing mounting holes to attached pcProx RKE receiver to structure.
3. Mount the receiver in a low electrical interference location.
4. Mount the receiver in a location which optimizes a line of sight from the transmitter.
5. Run all external cabling through the “Cable Strain relief” connector.

   Note: Drilling any holes through the receiver housing will void warranty.

Receiver Specification*

Input Voltage	12Vdc, 100ma
Wiegand Cable	22 AWG, 6 conductors, stranded, shielded; maximum 152m (500ft) to controller
Input Frequencies	Type 'A' 315MHz
Type 'B' 418MHz Output Formats	26-bit standard Wiegand; 37-bit propriety Wiegand
Transmission Range	30m (100ft)
Temperature Range	0°C to 70°C (32°F to 158°F)
Dimensions	152mm (w) x 114mm (h) x 46mm (d); 6 in (w) x 4.4 in (h) x 1.8 in (d)
Weight	310g (10.8oz)
Installation Environment	Indoor/outdoor

Support

4

Precautions

Mounting the pcProx RKE receiver with “Cable Strain relief” in the vertical position is NOT recommended.

Before You Call Technical Support

Please make sure you’ve identified your reader model and credential type being used. Have this information ready so that your call will be routed to the correct specialist.

For Assistance:

Ph: 847.870.1723
E: TechSupport@RFIDeas.com

Talking To The Technician

Provide the reader model being used to the Technical Support Specialist.

Explain your problem to the specialist.

Be prepared to provide the following information:
- Error/problem explanation
- What you were doing when the problem occurred
- What steps you have taken to resolve the problem, including results from each steps

Listen and follow the steps provided by the specialist. Let the specialist know what happens when you perform the steps.

END-USER LICENSE AGREEMENT

LICENSE AGREEMENT

End-User License Agreement for RF IDeas™ SOFTWARE and HARDWARE - RF IDeas' pcProx®, Proximity Activated Readers, Software Developer's Kit, and Proximity Reader DLLs, and Protocol(s).

IMPORTANT-READ CAREFULLY: This End-User License Agreement ("EULA") is a legal agreement between you (either an individual or a single entity) and the manufacturer RF IDeas ("Manufacturer") with which you acquired the RF IDeas software and hardware product(s) identified above ("PRODUCT"). The PRODUCT includes the RF IDeas reader, computer software, the associated media, any printed materials, and any "on line" or electronic documentation. By installing, copying or otherwise using the PRODUCT, you agree to be bound by the terms of this EULA. The SOFTWARE PORTION OF THE PRODUCT includes the computer software, the associated media, any printed materials, and any "on line" or electronic documentation. By installing, copying or otherwise using the PRODUCT, you agree to be bound by the terms of this EULA. If you do not agree to the terms of this EULA, RF IDeas is unwilling to license the PRODUCT to you. In such event, you may not use or copy the SOFTWARE PORTION OF THE PRODUCT, and you should promptly contact the vendor you obtained this PRODUCT from for instructions on return of the unused product(s) for a refund.

The products described in this publication are intended for consumer applications. RF IDeas assumes no liability for the performance of product. RF IDeas products are not suitable for use in life-support applications, biological hazard applications, nuclear control applications, or radioactive areas. None of these products or components, software or hardware, are intended for applications that provide life support or any critical function necessary for the support of protection of life, property or business interests. The user assumes responsibility for the use of any of these products in any such application. RF IDeas shall not be liable for losses due to failure of any of these products, or components of these products, beyond the RF IDeas commercial warranty, limited to the original purchase price.

SOFTWARE PRODUCT LICENSE The PRODUCT is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. The SOFTWARE PORTION OF THE PRODUCT is licensed, not sold.

1. GRANT OF LICENSE. This EULA grants you the following rights: *Software. You may install and use one copy of the SOFTWARE PORTION OF THE PRODUCT on the COMPUTER. *Network Services. If the SOFTWARE PORTION OF THE PRODUCT includes functionality that enables the COMPUTER to act as a network server, any number of computers or workstations may access or otherwise utilize the basic network services of that server. The basic network services are more fully described in the printed materials accompanying the SOFTWARE PORTION OF THE PRODUCT. *Storage/Network Use. You may also store or install a copy of the computer SOFTWARE PORTION OF THE PRODUCT on the COMPUTER to allow your other computers to use the SOFTWARE PORTION OF THE PRODUCT over an internal network, and distribute the SOFTWARE PORTION OF THE PRODUCT to your other computers over an internal network.

1.1 General License Grant RF IDeas grants to an individual, a personal, nonexclusive license to make and use copies of the SOFTWARE PRODUCT for the sole purposes of designing, developing, and testing your software product(s) that are designed to operate in conjunction with any RF IDeas designed proximity reader product. You may install copies of the SOFTWARE PRODUCT on an unlimited number of computers provided that you are the only individual using the SOFTWARE PRODUCT. If you are an entity, RF IDeas grants the right to designate one individual within your organization to have the sole right to use the SOFTWARE PRODUCT in the manner provided above.

1.2 Documentation. This EULA grants an individual, a personal, nonexclusive license to make and use an unlimited number of copies of any documentation, provided that such copies shall be used only for personal purposes and are not to be republished or distributed (either in hard copy or electronic form) beyond the user's premises and with the following exception: you may use documentation identified in the SOFTWARE PRODUCT as the file format specification for RF IDeas' proximity readers solely in connection with your development of software product(s) or an integrated work or product suite whose components include one or more general purpose software products.

1.3 Storage/Network Use. You may also store or install a copy of the SOFTWARE PRODUCT on a storage device, such as a network server, used only to install or run the SOFTWARE PRODUCT on computers used by a licensed end user in accordance with Section 1.1. A single license for the SOFTWARE PRODUCT may not be shared or used concurrently by other end users.

1.4 Sample Code. RF IDeas grants you the right to use and modify the source code version of those portions of the SOFTWARE PRODUCT identified as "Samples in the SOFTWARE PRODUCT ("Sample Code") for the sole purposes to design, develop, and test your software product(s), and to reproduce and distribute the Sample Code, along with any modifications thereof, only in object code form.

2. DESCRIPTION OF OTHER RIGHTS AND LIMITATIONS.

*Limitations on Reverse Engineering, Decompilation and Disassembly. You may not reverse engineer, decompile, or disassemble the PRODUCT, except and only to the extent that such activity is expressly permitted by applicable law notwithstanding this limitation

*You may not reproduce or otherwise emulate, in whole or in part, any form the protocol(s) defined within this PRODUCT for use without a RF IDeas PRODUCT Redistributable Code. If you are authorized and choose to redistribute Sample Code ("Redistributables") as described in Section 1.4, you agree to: (a) distribute the Redistributables in object code only in conjunction with and as a part of a software application product developed by you using the PRODUCT accompanying this EULA that adds significant and primary functionality to the SOFTWARE PRODUCT ("Licensed Product"); (b) not use RF IDeas' name, logo, or trademarks to market the Licensed Product; (c) include a valid copyright notice on the Licensed Product; (d) indemnify, hold harmless, and defend RF IDeas from and against any claims or lawsuits, including attorney's fees, that arise or result from the use or distribution of the Licensed Product; (e) otherwise comply with the terms of this EULA; and (g) agree that RF IDeas reserves all rights not expressly granted. You also agree not to permit further distribution of the Redistributables by your end users except: (1) you may permit further redistribution of the Redistributables by your distributors to your end-user customers if your distributors only distribute the Redistributables in conjunction with, and as part of, the Licensed Product and you and your distributors comply with all other terms of this EULA; and (2) in the manner described in Section 1.4.

*Separation of Components. The PRODUCT is licensed as a single product. Its component parts may not be separated for use on more than one computer.

*Single COMPUTER. The PRODUCT is licensed with the COMPUTER as a single integrated product. The PRODUCT may only be used with the COMPUTER.

*Rental. You may not rent or lease the PRODUCT without permission from RF IDeas

*Software Transfer. You may permanently transfer all of your rights under this EULA only as part of a sale or transfer of the COMPUTER, provided you retain no copies, you transfer all of the PRODUCT (including all component parts, the media and printed materials, any upgrades, this EULA and, if applicable, the Certificate(s) of Authenticity), AND the recipient agrees to the terms of this EULA. If the PRODUCT is an upgrade, any transfer must include all prior versions of the PRODUCT.

*Termination. Without prejudice to any other rights, RF IDeas may terminate this EULA if you fail to comply with the terms and conditions of this EULA. In such event, you must destroy all copies of the SOFTWARE PORTION OF THE PRODUCT and all of its component parts.

3. UPGRADES. If the SOFTWARE PORTION OF THE PRODUCT is an upgrade from another product, whether from RF IDeas or another supplier, you may use or transfer the PRODUCT only in conjunction with that upgraded product, unless you destroy the upgraded product. If the SOFTWARE PORTION OF THE PRODUCT is an upgrade of a RF IDeas product, you now may use that upgraded product only in accordance with this EULA. If the SOFTWARE PORTION OF THE PRODUCT is an upgrade of a component of a package of software programs which you licensed as a single product, the SOFTWARE PORTION OF THE PRODUCT may be used and transferred only as part of that single product package and may not be separated for use on more than one computer.
4. OEM COPYRIGHT. All title and copyrights in and to the PRODUCT (including but not limited to images, photographs, animations, video, audio, music, text and "applets," incorporated into the PRODUCT), the accompanying printed materials, and any copies of the SOFTWARE PORTION OF THE PRODUCT, are owned by RF IDeas or its suppliers. The PRODUCT and SOFTWARE PORTION OF THE PRODUCT is protected by copyright laws and international treaty provisions. You may not copy the printed materials accompanying the PRODUCT.
5. DUAL-MEDIA SOFTWARE. You may receive the SOFTWARE PORTION OF THE PRODUCT in more than one medium. Regardless of the type or size of medium you receive, you may use only one medium that is appropriate for your single computer. You may not use or install the other medium on another computer. You may not loan, rent, lease, or otherwise transfer the other medium to another user, except as part of the permanent transfer (as provided above) of the SOFTWARE PORTION OF THE PRODUCT.
6. OEM PRODUCT SUPPORT. Product support for the product is not provided by RF IDeas or its subsidiaries. For product support, please refer to the OEM supplies support number provided in the documentation. Should you have any questions concerning the EULA, or if you desire to contact OEM for any other reason, please refer to the address provided in the documentation provided.
FOR THE LIMITED WARRANTIES AND SPECIAL PROVISIONS PERTAINING TO YOUR PARTICULAR JURISDICTION, PLEASE REFER TO YOUR WARRANTY BOOKLET INCLUDED WITH THIS PACKAGE OR PROVIDED WITH THE SOFTWARE PRODUCT PRINTED MATERIALS.
Limited Warranty: RF IDeas warrants to the original buyer of this product, that the hardware and related disk(s) are free of defects in material and workmanship for a period of one year from date of purchase from RF IDeas or from an authorized RF IDeas dealer. Should the RF IDeas products fail to be in good working order at any time during the one-year period, RF IDeas will, at its option, repair or replace the product at no additional charge, provided that the product has not been abused, misused, repaired or modified. This warranty shall be limited to repair or replacement and in no event shall RF IDeas be liable for any loss of profit or any commercial or other damages, including but not limited to special, incidental, consequential or other similar claims.
No dealer, distributor, company, or person has been authorized to change or add to the terms of this agreement, and RF IDeas will not be bound by any representation to the contrary. RF IDeas SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS OF PURPOSE. Since some states do not allow such exclusion of limitation of incidental or consequential damages for consumer products, check the statute of the state in which your business resides. This warranty gives you the specific legal rights in addition to any rights that you have under the laws of the state in which your business resides or operates.
Returns: RF IDeas products which require Limited Warranty service during the warranty period shall be delivered to the nearest authorized dealer or sent directly to RF IDeas at the address below with proof of purchase and a Return Materials Authorization (RMA) Number provided by RF IDeas Technical Support Dept. Replacement parts or complete boards become the property of RF IDeas If the returned board or unit is sent by mail, the purchaser agrees to pre-pay the shipping charges and insure the board or unit or assume the risk of loss or damage which may occur in transit. The purchaser is expected to employ a container equivalent to the original packaging.
Copyright: Copyright by RF IDeas. All rights reserved. Reproduction or distribution of this document in whole or in part or in any form is prohibited without express written permission from RF IDeas.
Trademarks: All RF IDeas products are trademarks of RF IDeas. All other product names or names are trademarks or registered trademarks of their respective holders.
Applicable Patents: RF IDeas pcProx Plus card readers supporting HID formats retain US Patent No. 5,952,935 and U.S. Patent No. 7,439,862.
Disclaimer: This Reference Guide is printed in the U.S.A. Any resemblance mentioned in the Reference Guide to persons living or dead, or to actual corporations or products is purely coincidental. RF IDeas believes that the information contained in this manual is correct. However, RF IDeas does not assume any responsibility for the accuracy of the content of this User Manual, nor for any patent infringements or other rights of third parties. RF IDeas reserves the right to make any modifications in either product or the manual without giving prior written notification.

FCC Compliance Statement
FCC ID: OD5SF2TXB (Remote Control Transmitter 418MHZ) FCC ID: OD5SF2TXA (Remote Control Transmitter 315MHZ)

"Pursuant to FCC 15.21 of the FCC rules, changes not expressly approved by RF IDeas might cause harmful interference and void the FCC authorization to operate this product.

Changes to this product not expressly approved by RF IDeas will void the user's authority to operate the equipment.

Note: This device complies with Part 15 of the FCC Rules and Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This product complies with FCC OET Bulletin 65 radiation exposure limits set forth for an uncontrolled environment.

The reader may not recognize value cards in the presence of high RF fields. If the current reading is erratic, the user shall take the following step: Move the equipment from any known transmitters nearby. For more information contact Tech Support at 866.439.4884.

Index

A

Antenna Connector 5

C

Cable Strain Relief 8

D

DIP Switch 6

E

EEPROM 4

J

Jumper 1 5
Jumper 2
Jumper 3

K

Key Fob Transmitter 4

L

LED1 5

M

Mounting 8

P

Power Inputs 7
Proximity 4

R

Relay 6
Reset Button 7
RF Signals 4
RSSI 5

S

Switch 1 6
Switch 2
Switch 3
Switch 4

V

VR1 5

W

Wiegand 6

Other Products & Accessories

Software Developer's Kit
Allows independent developer's to use their application to read proximity access badge Read ID data of more than 1 billion cards in the field

PVC Label Proximity Card
Credit card size with paper release liner, 500 cards per box

Proximity Cards, Labels, Key Fobs
Complete selection of various manufacturers proximity cards, labels and key fobs. Marked with data code and ID number, available in several Wiegand formats

pcProx Read/Write Contactless
Reads and writes directly to the smart cards

pcProx Writer and Playback
Desktop read-only for iCLASS and NXP and smart cards

pcProx Playback Starter Kit
Plays back card sector data in ASCII or keystrokes

pcProx Sonar
Presence detector configured as a keyboard

PS/2 to USB Power Tap
Powers a USB RF IDeas device from a PS/2 port

Mounting Brackets
Further adjust the standard mounting of the device angle

RF IDeas Inc.
© 2013 RF IDeas. All rights reserved.

Specifications subject to change without notice.

Windows, Macintosh, Solaris, Sun Ray and Linux are trademarks of their respective companies.
All other trademarks, service marks and product or service names are property of their respective owners.

Mention of third-party products is for informational purposes only and constitutes neither an endorsement nor a recommendation. RF IDeas assumes no responsibility with regard to the performance or use of these products.
All understandings, agreements, or warranties, if any, take place directly between the vendors and the prospective users.

Please feel free to call, e-mail or visit our web site for a full list of applications, products, configuration options, supported cards and form factor specifications. Our web site includes application videos, support materials, case studies and detailed information about our product line.

Every effort has been made to ensure that the information in this manual is accurate. RF IDeas is not responsible for printing or clerical errors.